

WE CLAIM:

- Sub A 17
1. A training system for teaching the use of night vision goggles comprising:
- a. a system generating high fidelity, infrared, terrain simulation images, and
- 5 b. a system in communication with said image generation system providing sufficient irradiance to increase the dynamic range needed to reproduce effects to simulate direct viewing of bright lights such as produced by explosions and flares.
2. The training system in accordance with claim 1 including a system scan converting the resulting image generated to video for display on a pair of simulated goggles.
3. The training system in accordance with claim 1 including for a system scan converting the resulting image generated to video and projecting the image on a display screen.
4. The training system in accordance with claim 1 wherein said communication system includes:
- a system allocating each of three 12-bit video signals to a preselected portion or all of the total irradiance range representing scene
- 5 elements of low, medium and high light intensity, and
- a video camera for scan converting the resultant image to preserve its resolution and dynamic range.
5. The training system in accordance with claim 1 including for a system providing a stable image regardless of the simulated night vision goggle line of sight.

6. The training system in accordance with claim 1 wherein said signal generation and communication systems are provided in a light tight package to maintain contrast.

7. A training system for teaching the use of night vision goggles comprising:

a. a system generating high fidelity, infrared, terrain simulation images, and

5 b. a system in communication with said image generation system providing sufficient irradiance to simulate the entire range of natural nighttime terrain irradiance.

8. A training system in accordance with claim 7 including a system scan converting the resulting image generated to video for display on a pair of simulated goggles.

9. A training system in accordance with claim 7 including a system scan converting the resulting image generated to video and projecting the image on a display screen.

10. A training system in accordance with claim 7 wherein said communication system includes:

a system allocating each of three 12-bit video signals to a preselected portion or all of the total irradiance range representing scene elements of low, medium and high light intensity, and

5 a video camera for scan converting a resultant image to preserve its resolution and dynamic range.

11. A training system in accordance with claim 7 including a system for providing a stable image regardless of the simulated night vision goggle line of sight.

12. A training system for teaching the use of night vision goggles comprising:

a. a system generating high fidelity, infrared, terrain simulation images, and

5 b. a system in communication with said image generation system for providing sufficient irradiance to increase the dynamic range needed to reproduce effects to simulate direct viewing of bright lights such as produced by explosions and flares;

10 said communication system including a system allocating each of three 12-bit video signals to a preselected portion or all of the total irradiance range representing scene elements of low, medium and high light intensity, and

c. a video camera for scan converting the resultant image to preserve its resolution and dynamic range; and

15 d. a system for providing a stable image regardless of the simulated night vision goggle line of sight;

said signal generation and communication systems are provided in a light tight package to maintain contrast.

13. A training system in accordance with Claim 12 wherein said scan converting system includes:

a system video displaying the resultant image generated on a pair of simulated goggles.

14. A training system in accordance with Claim 12 wherein said scan converting system includes:

a system video displaying the resultant image generated on a display server.

15. A method for simulating night vision as seen through a pair of goggles comprising the steps of:

- a. providing a pair of simulated goggles,
- b. generating a high fidelity, infrared, terrain simulation image viewable in said goggles,
- c. simulating the entire range of natural night time terrain irradiance, and
- d. scan converting the resultant image generated to video for display through said simulated goggles.

16. The method of claim 8 wherein said scan conversion includes the steps of:

- a. allocating each of a three, 12-bit video signal to a preselected portion of the total irradiance range representing scenic elements of low, medium and high light intensity,
- b. scanning the converted image to preserve its resolution and dynamic range.

17. The method of Claim 16 including the step of:

rendering the generated image stable regardless of the simulated night vision line of sight.

18. The method of Claim 17 including the step of:
maintaining contrast of said generated image.
19. The method of Claim 18 including the step of:
maintaining the contrast of said generated image by providing the
generating image in a light tight package.
20. The method of Claim 15 including the step of:
rendering the generated image stable regardless of the simulated
night vision line of sight.
21. The method of Claim 15 including the step of:
maintaining contrast of said generated image.
22. The method of Claim 21 including the step of:
maintaining the contrast of said generated image by providing the
generating image in a light tight package.